

MONTHLY REPORT.

Nov.
1921

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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

CE OF THE SUPERINTENDENT

December 8, 1921

Dear Sir:

The following is my report on Yellowstone National Park, and the operation of the Park, for the month of November, 1921: Superintendent Albright left the Park on November 6th, for a conference in Chicago and a tour of the National Parks, and is now in California.

GENERAL CONDITIONS:

Conditions for outside work, which were ideal during October, remained excellent up to about the middle of November, affording an opportunity to finish up any delayed season's work and make all necessary preparations for the long winter. Since the middle of the month storms have been frequent enough to handicap outside operations, but it was not especially cold and necessary work was handled though with a little more trouble and expense than in summer.

Weather

November weather was most notable, for mildness and sunshine the first half of the month, and later for extremely unusual conditions, the storm of November 21st which is fully described in the following notes being most remarkable. The Monthly Meteorological Summary of weather conditions for November is enclosed, and the following special notes are also furnished by the Observer of the local Weather Bureau office:

Temperature: Monthly mean, 31.9° , is 2.6° above normal. Warm, pleasant weather prevailed during the first two weeks, while the third week was abnormally cold, -5° being registered on the 19th and 21st. The closing week was

Dec 14-21
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mild. The maximum of 60° on the 4th is the highest temperature recorded in November during the past 19 years.

Precipitation: 2.55 inches, is 1.11 inches above normal. With two exceptions this is the greatest monthly total of record for November. No precipitation fell during the first 12 days, but snow or rain was of almost daily occurrence during the remainder of the month.

In 2 sheets

Snowfall: Total 23.7 inches; normal 10.5 inches. A greater amount of snow has fallen in November only in 1911 and in 1896.

Wind: Total movement about normal, but the maximum velocity of 41 miles from the south on the 22d has been exceeded but once during the past 16 years.

Sunshine: Percentage of possible 44; normal 47.

The Storm of November 21: The following notes on this unusual storm were also furnished by the Weather Bureau.

In 1 sheet

At 6 a.m. the snow changed to a mixture of snow and sleet, which continued until 1:50 p.m., when it changed to rain, sleet and snow. At 4:15 p.m. the temperature began to fall rapidly and sleet and snow again set in. From 1:50 p.m. to 4:15 p.m. there were sudden and rapid temperature fluctuations, ranging between 14° and 35°. This sudden change in temperature at short intervals caused a corresponding change in the kind of precipitation, changing frequently from sleet and snow to sleet and rain, and vice versa. From 1 p.m. to 5:30 p.m. light fog formed and disappeared at intervals, as a result of the sudden mixing of air currents of widely different temperatures. Low stratus clouds or fog obscured the nearby mountains on all sides of the station during the day. Unusually light, variable winds prevailed. As sleet was falling with a surface temperature of -5° during the early morning it is evident that a steep temperature inversion prevailed, which probably accounts for the freakish conditions that occurred during the day. At the time of the a.m. observation stratus clouds were moving rapidly from the west, while the surface wind was four miles from the north. A chinook condition set in shortly before 10 p.m. and the temperature rose from zero at 8:15 p.m. to 30° at 10 p.m. Precipitation ended at 9:30 p.m. and the sky cleared suddenly with the coming of the chinook. At 6 p.m. there were 9.6 inches of snow on the ground, with about half an inch of crust on the top.

The following interesting table, showing temperatures and precipitation records for many years, was recently compiled by the Weather Bureau, and in addition to being of intense interest it will serve to answer thousands of questions that are asked every summer by travelers, as to "how cold it gets in winter", "how early in the fall are you snowed in", etc.

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Annual

Normal temperature (average for 33 years)

4.6 19.6 26.5 37.0 47.4 56.0 61.5 60.9 53.4 41.5 29.5 21.6 39.4

Absolute minimum temperature for 34 years (1887-1920)

41 -36 -25 -3 15 20 30 25 zero -20 -27 -31 -41

Absolute maximum temperature for 34 years (1887-1920)

49 51 62 77 89 92 96 93 88 82 66 48 36

Normal precipitation (average for 30 years)

1.24 1.84 2.18 1.38 1.91 1.64 1.18 1.02 1.01 1.14 1.44 1.82 16.80

Average monthly snowfall for 34 years (1887-1920)

0.6 15.3 17.5 8.0 4.8 0.8 0.1 T 1.6 6.8 10.5 14.3

T = trace

Travel

Herewith is Chief Ranger's report of Travel for November, 1921, with copy of the 1920 report for November for comparison, showing as follows:

Comparison of November Travel, 1920-21

	Cars Entering	Carrying	Meals.	Total
November, 1920	20	55	6	61
November, 1921	29	104	-	104

Labor and Supply Market

This being the dull season, and everything practically on a winter basis, this feature is inactive and there are no notable changes.

II. PERSONNEL:

Employees

On November 1st there were 94 employees of various classes on duty under this office, which had been decreased to 89 by November 30th.

The following list shows the number of employees of various classes serving under appointment during the month, with a general statement of the kind of work in which they were engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of work performed</u>
2 ✓	Asst. Engineers	In charge of engineering work in the park. (1 M.P.S. at large) <i>Nov 21</i>
5 ✓	Clerks	1 Disbursing Agent and Purchasing Clerk; 1 on cost account work and property; 1 on time keeping, orders, proposals and vouchers; 2 stenographer-typists on stenographic work, files, etc., (one on leave without pay since November 12th). <i>One taken up from leave without pay Dec 5</i>
2 ✓	Electricians	Read meters, did necessary line work, and operated power plant regular shifts, including Sundays.
3 ✓	Foremen	1 in charge of stables at headquarters; 1 in charge of Madison Junction storehouse; 1 on bridge construction. <i>Repairing bridge</i>
1 ✓	Telegraph Operator	Sent and received all Government Western Union messages; operated one shift on telephone switchboard.
2 / ✓	Telephone Switchboard Operators	Operated telephone switchboard, daily shifts, including Sundays. (1 on intermittent service only... when needed. Was not called upon in Nov.)

<u>No.</u>	<u>Class</u>	<u>Kind of work performed</u>
1 ✓	Master Mechanic	In charge of shops, and of repairs to heavy road machinery.
1 ✓	Blacksmith	General blacksmith work, including shoeing horses in shop, overhauling and repairing tools and equipment.
1 ✓	Master Painter <i>Painter</i>	General shop work, including repairs to equipment and buildings at headquarters, also painting road signs.
1 ✓	Chief Lineman	In charge of power plant, telephone lines, and of maintenance crews on telephone lines.
6 ✓	Laborers	Teaming, freighting and miscellaneous work at headquarters. 1 appointed effective November 1, and one November 11, 1921.
1 ✓	Handyman	Acting Steward and Master of Transportation.
1 ✓	<i>Chief</i> Buffalo Keeper	In charge of tame buffalo herd.
2 ✓	Asst. Buffalo Keepers	1 assisting Buffalo Keeper; 1 in charge of hay ranch operations at Slough Creek.
1 ✓	Master Plumber	In charge of general plumbing and water systems at public automobile camps.
3 ✓	Automobile Mechanics	2 Repairing motor trucks and touring cars. 1 appointed effective November 1, 1921. 1 on duty at Power Plant
1 ✓	Watchman	Made hourly patrols during night at headquarters and took care of office. Dropped end November 10, 1921.
1 ✓	Carpenter	Repairing buildings at headquarters.
1 ✓	Chief Park Ranger	In charge of ranger force to include November 5; Acting Game and Fish Warden beginning November 6, 1921.

Trist
Marion
Cleveland
Hudson
O'Leary
Croger

Marshall
Riley
Forscher

1	1st Asst. Chief Park Ranger	In charge of Northern district.
2	Asst. Chief Park Rangers	1 in charge of Southern district. 1 in charge of Western district.
22	✓ Park Rangers	1 Acting Chief Ranger beginning Nov. 6, on duty in Chief Ranger's Office. Patrolling park borders, protecting and giving special attention to game and fish.
4	✓ Temporary Park Rangers	Making patrols. 1 laid off <i>Hudson</i> effective Nov. 21; 1 appointed effective Nov. 2. <i>Bauman</i>

In addition to the regular employees listed above under appointment, the following were employed temporarily by the day:

	<u>On Nov. 1st</u>	<u>On Nov. 30th</u>
Plumber	1	1
Carpenters	4	
Mechanics	2	2
Foremen	2	
Skilled laborers	15	10
Laborers	4	1
2-horse Teamsters	1	1
Cooks	2	1
	<u>31</u>	<u>16</u>
Appointees	<u>63</u>	<u>62</u>
	94	78

Leaves of Absence

During November, annual leaves of absence were granted as follows:

Helen E. McHatt	Stenog-Typist	On Furlough Nov. 1-Feb. 28
Carrie O. Haunesser	" "	6 days, Nov. 4-11
do	" "	Sog. Nov. 12-Feb. 15 LWP
Chester A. Lindsley	Asst. Supt.	3 days, Nov. 1-3
Francis E. Bregdon	Asst. Electrician	10 days, Nov. 3-15
Nathan E. Samiel	Telegraph Operator	3 days, Nov. 9-15
George T. Dustman	Clerk	$\frac{1}{2}$ day, Nov. 5 (noon)-5
do	do	$\frac{1}{2}$ day, Nov. 12 (noon)-12
do	do	1 day, Nov. 19-19
do	do	1 day, Nov. 26-26
Andrew R. Edwin	do	2 days, Nov. 10-12

Wendell H. Bishop	Park Ranger	1½ days, Nov. 10(noon)-12
Fred C. Finch	" "	1 day, Nov. 10(noon)-12(noon)
William H. Farrell	Foreman	9 days, Nov. 14-23
August C. Neumann	Master Painter	5 days, Nov. 9-12
Burton C. Lacombe	Buffalo Keeper	2 days, Nov. 14(noon)-16(noon)
Julia S. Stockett	Stenographer	4½ days, Nov. 22-23 (noon)
Bert L. Stinnett	Master Mechanic	5 days, Nov. 18-19
Sam Hurless	Park Ranger	5 days, Nov. 16-21
Roy K. Gray	Laborer	2 days, Nov. 29-30
Sam T. Woodring	Park Ranger	2 days, Nov. 25-26
Edad C. Pound	" "	2½ days, Nov. 23(noon)-30
William Wiggins	Master Plumber	1 day, Nov. 23(noon) to Nov. 25(noon)

Separations

The services of William J. O'Laughlin, as watchman, were discontinued effective close of November 10, 1921.

Sam Hurless, Temporary Park Ranger, \$100 per mo., laid off close of November 21st, 1921, services no longer required.

Appointments

Julia S. Stockett, Stenographer, \$1200 p.a., effective November 1, 1921.

William J. O'Laughlin, Laborer, \$90 per mo., effective Nov. 11, 1921.

John Bauman, Park Ranger, \$1200 per annum, effective November 2, 1921.

Daniel W. Tripp, Laborer, \$1200 p.a., effective November 1, 1921.

John D. Fraser, Automobile Mechanic, \$1320 p.a., effective November 1, 1921.

III. WORK COMPLETED:

(a) Construction of Physical Improvements

Nothing to report. Construction work is reported under IV.

(b) Maintenance and Repair of Physical Improvements.

This work is also combined with work in progress under IV.

Surveys

On November 15, 16, 17 and 18th, a topographical survey was made of the Mammoth Permanent Camp and vicinity; all topographic features including buildings, reservoirs, roadways, pipe lines and the overflow stream from the reservoir were carefully located.

A map on a scale of 100 feet to the inch showing contours of five foot intervals was later made up in the office.

On November 9th, a survey was made of the Canyon Permanent Camp to locate new buildings constructed there the past summer and fall. With this information and data previously secured, a new map was made of the Camp and vicinity on a scale of 100 feet to the inch, showing contours of five foot intervals.

It is expected that these maps will prove valuable to the Park Service when approving extensions and alterations of the camps, and in working out a scheme of improvement to the landscape features.

Several other maps were made, some showing trails in the Park and others of the Game Preserves in relation to the Park boundaries.

The Engineer's files of maps and other data were brought up to date and a new file started for reference of articles clipped from technical magazines pertaining to roads, bridges, sewer systems and other subjects.

(a) Service to the Public

Nothing to report, as there were no tourists in the park.

IV. WORK IN PROGRESS:

(a) Construction of Physical Improvements

Bridges

The work of building concrete bridges in the East Forest Reserve was continued through the month.

The floor slab, of the 20 foot span concrete T beam bridge over Coff Creek, which was described in the October report, was poured November 2nd, and the railings several days later. The following material was used in the construction of this bridge: 350 sacks of cement; 5949 lbs. of reinforcing steel and 54 cubic yards of sand and gravel.

On the afternoon of November 2nd, the camp was moved to Newton Creek and work begun on that bridge. A temporary roadway and bridge was constructed and the old one removed. The Newton Creek bridge, is a twelve foot span reinforced concrete slab resting on concrete abutments with concrete wing walls and railings. The footings were poured, November 13th, the abutment November 25th, and floor slab November 28th. Considerable snow fell the last half of the month and the weather was cold and very unfavorable for concrete work. Fires were kept around the green concrete and it is not expected any harm will result from frost. As the railings could not easily be protected from frost, it was decided to let them go until spring. The equipment was stored for the winter and crew disbanded and taken to Cody.

Four concrete bridges were constructed the past season. The one at Morris over the Gibbon River is 99 per cent complete, 1 per cent being retained for a little finishing work to be done on the railings.

The Mormon Creek bridge is 95 per cent complete, 5 per cent being held for some finishing work on the railings and filling in the approaches at each end.

The Goff Creek structure is 95 per cent complete, 5 per cent being retained for the same work as that required at Mormon Creek.

The Newton Creek bridge is 85 per cent complete. The 15 per cent retained is to construct the railings and fill in the approach at each end.

(b) Maintenance and Repair of Physical Improvements

Road Maintenance

Due to the inclement weather conditions prevailing the latter part of the month and the lateness of the season, no road repair or maintenance work was attempted, except that a four-horse grader outfit worked one day to clear away enough of the slide in the Gardiner Canyon, one and one-half miles from Gardiner, to permit cars to pass that point in safety.

(c) Miscellaneous Improvement Work

Painters: The Master Painter and his assistant helped the carpenters on the construction of an addition to the paint shop, replaced broken glass in windows, and did several small jobs of

renovating in switchboard office and employees' quarters.

Plumbing Department: The Master Plumber and his assistant installed a washbowl and toilet in the new checking station at the north entrance, installed two washbowls and a toilet in the old Post Exchange building used for an entertainment hall and for school purposes and living quarters for employees, removed the sink in the butler's pantry and installed a toilet and washbowl in the superintendent's quarters on the main floor, and begun the installation of a new heating plant in the cottage occupied by Chief Clerk Hill. Also gave necessary attention to the water and sewer system, keeping it in repair and turning water off and on as quarters were occupied or abandoned.

Headquarters Corral: A foreman and 1 teamster were employed at the stables and in charge of harness, saddles and stable equipment, caring for horses, and doing general hauling about headquarters. Two men and a single team also continued the work of getting out a supply of wood from the side of Bunsen Peak to supply the public automobile camp for next summer, and made excellent progress.

Carpenter Shop: The carpenters attended to maintenance of buildings and remodeling and repairing buildings at headquarters.

Blacksmith Shop: Shod horses for barn, Buffalo Ranch, and Ranger force, repairing equipment, including trucks, for next season, checked and re-arranged their stock of supplies, and assisted in the remodeling of the shops.

Garage: The force was busy repairing trucks and passenger vehicles, issuing gasoline and oil and assisting in the remodeling of the Shop.

The Telephone System and Power Plant were maintained under direction of the Chief Lineman, except the lines in the park which were repaired when breaks occurred by the ranger force. This work consisted principally of the usual work of operating the power plant, the switchboard, and making slight changes and repairs to wiring and instruments in buildings at Headquarters. The Power Plant was run 24 hours a day including Sundays, three operators being used on 8-hour shifts for this work. A total of 14,960 kilowatt hours of current were generated during November, of which 2,313 were sold to park utilities, 4161 used for lighting grounds at Headquarters, and the balance of 8,486 k.w. hours were consumed in lighting government buildings and on the power lines. The peak load during the month was 38 k.w., on the 13th at 6:00 P.M.

Regular routine work kept the office force busy. The number of clerks was reduced by two as two then desired a few months leave of absence without pay and their services can be spared in winter.

The Transportation and Storehouse force was busy receiving and hauling several carloads of coal and a few other supplies. This force was also much smaller than during the working season.

Ranger Force

By Office Circular No. 25, dated November 1, copy enclosed, Chief Ranger McBride was detailed to assume the special duties of Game and Fish Warden, retaining charge of the protection of the north line and the game in the northern district, which is by far the most important work we have in this line in winter. Park Ranger Woodring was detailed by the same circular as Acting Chief Ranger.

Intensive patrols were maintained on all park boundary lines where hunting was likely to occur. No evidence was found during the month of poaching in the park, and as the weather was fine for game and but few, if any, of our animals crossed the line, but few elk or deer were killed.

Other activities of the Ranger force included the bringing in to Headquarters of the horses from the Southern and Western Districts and taking them out to the Yancey meadows for winter quarters. Since the horses came in about the middle of November, patrols in these districts have been made on skis or snowshoes. Rangers on duty at Headquarters and in the Northern District assisted in rounding up the tame buffalo herd, vaccinating the calves, and in cutting out the four buffalo to be crated for shipment to the New York Zoo. Also making preparations for capturing elk desired to be shipped to the same place.

After the close of the open season for elk in Montana, one ranger from Greyside Station, and one from Soda Butte Station, were transferred to Hellroaring Station to assist in handling the elk in that vicinity and hold them back from the park lines, towards Slough Creek where they are to be fed hay.

Acting Game and Fish Warden McBride made inspection trips over the northern district, directed the construction of the pens for catching elk, and gave special attention to the study of the antelope herd, directing special patrols to keep

track of the antelope.

Acting Chief Ranger Woodring made trips to the Canyon, Hellroaring, Tower Falls and Mount Everts, acquainting himself with the district. He also assisted at the Buffalo Ranch in handling the herd, and assisted with the elk trapping at Headquarters.

The rangers at Gardiner station on at least one occasion rendered valuable assistance to the Deputy State Game Wardens of Montana in connection with illegal hunting in the Gallatin Game Preserve, and their combined efforts resulted in an arrest and conviction of a local party for unlawful killing of an elk.

Improvement by Park Utilization

Practically all activities in this direction stopped in October. The Hotel Company employed winter keepers at all hotels; the Camps Company had three men engaged in over-hauling motors and other equipment in their shop at Mammoth; and the Transportation Company continued the employment of a full force of mechanics at Mammoth overhauling motor cars for next season's work.

VI. PLANS OR PROPOSED WORK:

Plans for December include the usual winter patrols by the Ranger force, also extermination of wolves and coyotes, care of tame buffalo at the ranch by the keepers, care of extra horses which are to be fed hay at Tower Falls, and special observation of the antelope herd near Gardiner and the elk all along the north line.

At headquarters the regular maintenance of the power plant and telephone system, water and sewers, and buildings. The shop force will continue the work of overhauling motors and heavy equipment, repairs and alterations to buildings in use as shops, storehouses, and living quarters for employees. Two more carloads of coal are to be received to complete the winter allowances, and after this is hauled and stored, the transportation and storehouse force will be reduced to about three men who can handle the necessary current work and put in spare time giving the storehouses a general overhauling and separate and list unserviceable property, sending such as can be repaired through the shops where it will be put in good shape for another season's use.

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VII. POLICIES.

Recommendation was made and favorably acted upon renewing the practice of permitting the shipping of a few of the park elk to public parks, this custom having been discontinued for a year or two following the severe losses during the winter of 1919-20.

VIII. COST OF OPERATION.

This will be shown by the November cost report which will be forwarded as soon as it can be completed.

IX. OTHER MATTERS OF INTEREST.

Wild animals

The weather and grazing conditions for our grass-eating animals that winter in the park are excellent at the present time. Matters looked serious for them for a few days following the unusual storm which occurred about November 21st, as the sleet which fell for several hours froze and formed a hard crust which would seriously hinder their getting down to the feed under the snow, but fortunately, it turned warm again and melted and rotted the crust to some extent, and new snow fell on it while it was still fairly warm, and the final results have not been specially detrimental and all of our elk, deer, mountain sheep and antelope are apparently contented and getting enough to eat without difficulty. This storm did serve to drive them down to some extent to the lower levels, and since it occurred these animals are seen in considerable herds near Headquarters and along the road towards Cooke. The depth of snow on the game ranges can be best judged by studying the following table of snow depths at various points where it can be gauged:

Snow Depths November 30, 1921

Mammoth	16 inches	Morris	36 inches
Gardiner	1 "	Madison Jm.	24 "
Crawie	24 "	Riverside	18 "
Hellroaring	10 "	Gallatin	24 "
Soda Butte	12 "	Snake River	36 "
Buffalo Park	8 "	Seabler	36 "
Tower Falls	14 "	Lake	16 "
Canyon	24 "	Upper Yellow.	20 "
Sylvan Pass	12 "		

Antelope: Game Warden McBride counted 405 antelope in the herd within a mile of the village of Gardiner one day, which is an increase of about a hundred over last year and is about the most encouraging report on antelope we have had for many years. They are in excellent condition and seem to be getting all the feed they want. Special attention is being devoted to this herd, and the antelope are discouraged from crowding the wire fence on the north line as they are likely to get through and go down the Yellowstone River. There have been no dead ones found to date.

Buffalo, tame herd: The herd was rounded up and brought in to the ranch on November 21st, preparatory to the vaccination of the calves against hemorrhagic septicemia, and the following day the calves were separated from the cows, and the older animals again turned out on the range. Arrangements had previously been made with the Office of the Bureau of Animal Industry, Department of Agriculture, Helena, Montana, to perform this work, and as soon as the fresh vaccina arrived from Washington, a veterinarian was sent with it. The first vaccination occurred on November 26th, by Doctor Neil Plank, of that Bureau. Two bull calves sustained broken legs in handling, and had to be killed. The second vaccination occurred on December 3d, when 41 male calves and 39 females were recorded, making a total of 80 calves. At this time, 28, or 68% of the bulls were castrated. The 4 buffalo authorized for the New York Zoological Society were brought in to Headquarters on November 23d, for fear the road would be blocked with snow if we waited longer. They were held here and shipped on December 6th.

The calf herd will have to be held in for most of the winter and fed hay, but the adult members of the herd have been turned back on to the range.

Buffalo, wild herd: Two of this herd were seen in the Upper Yellowstone District, and five, including two calves on Cache Creek. No effort was made to look them up during November, as there was no particular reason for disturbing them.

Bears: No depredations were reported for the month. The bears have hibernated for the winter, the last one which was seen having been on November 23d, in the northern district.

Deer: Deer are seen all over the Northern District, and like the other animals, are in fine shape. More than 200 were counted and included in reports.

Elk: The elk herds remained high in the mountains until the storm of November 20th, and since it has subsided they are seen in bands of several hundred all along the northern border of the

park. Game Warden McBride saw and counted 5,800 in the northern district during the month. They are all in exceptional condition, and this applies specially to the cows and calves which are rolling in fat. The conditions for their feed and protection are first-class at the present time. The large number of calves with the herds indicates a goodly increase. Several large bulls with excellent heads have been noted along the Cooke road.

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Cottonwood Basin
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Following the procedure adopted last year, men are stationed with horses at Hellroaring and Slough Creek to herd the elk back from the park lines. A patrol is made from Gardiner and Mammoth over the Turkey Pen and Blacktail to hold them back.

Forty elk broke through the fence on the North line at Hoppe Creek but were herded back and the fence repaired by Park Ranger McLaughlin. None of this band were killed.

The elk in the Southern and Eastern herds did not begin to leave the park until the last of the month. No count was reported, but it is claimed they have increased considerably over last year.

Due to the improved condition of the herd, recommendation was made on November 23d to resume the custom of previous years of permitting the shipment of a limited number to public parks, and orders for a few have already been received.

Moose: Reports seem to indicate that moose are comparatively plentiful throughout the park. About 500 were accounted for in the northern district during the month, where they are wintering on Blacktail and Slough Creek. They have also been noted in the Upper Yellowstone, and the rangers there have several times had to climb trees for safety when they encountered the old bulls.

Mountain Sheep: 33 were counted in the Northern District during November, in the Mammoth and Hellroaring Districts. Several young were noted. Park Ranger Wisdom reports that two were known to have been killed east of the park during the open season.

Predatory Animals: There are plenty of indications of predatory animals, especially wolves and coyotes. One Park Ranger has devoted his whole time to their extermination, and during November turned in 6 coyotes and 1 wolf. Special permits were

issued to 11 employees at Park Headquarters to hunt coyotes during their spare hours, and 3 coyotes were killed by them during the month. A permit was given Mr. Court Dewing to trap coyotes in a definitely fixed district from Gardiner to Black-tail, and he succeeded in trapping five when he was taken to the hospital and is reported to be sick past recovery.

Trapping Operations outside of the Park. Although the fur market is comparatively low, reports indicate from 2 to 3 trappers are working or preparing to work on each side of the park, which in some cases requires special vigilance on the part of our men to keep them from encroaching.

Game Wardens: The State Game and Fish Wardens of Montana and Wyoming have, in compliance with our suggestions, appointed park rangers who have been detailed to patrol the lines adjoining their respective states, as deputy wardens without bond or pay. Excellent results are expected through this cooperation.

Hunting: All open seasons for big game in states adjoining the park closed before, or with the end of November. From the standpoint of the game protector, the season was a very successful one - the opposite of course from the standpoint of the hunter. From the best sources of information, the numbers of game animals killed during the open season in this vicinity is shown by the following table:

	<u>Elk</u>	<u>Bear</u>	<u>Deer</u>	<u>Sheep</u>
North	8	4	4	0
West	20	2	3	0
East	15	0	3	2
South	<u>15</u>	<u>0</u>	<u>5</u>	<u>1</u>
Total	58	6	15	3

Fishing. No interest was taken in fishing in the Park during November. The Montana State Hatchery at Bozeman donated about 2,000 large fingerlings of the Eastern Brook variety which were planted Nov. 1 in Obsidian Creek in Willow Park, and the following day another shipment of about 5,000 fry Rainbow and eastern brook were received from the same source and planted in the Upper Gardiner River.

Arrests: No arrest was made by Park rangers during the month, but assistance was rendered to State Wardens in several instances. Park Ranger Al McLaughlin, who was stationed in camp on Reese Creek, assisted the deputy warden of Montana in

running down a case of killing elk out of season outside of the park, and the defendant was found guilty and fined \$250 and costs.

Loose Stock: On November 15th a permit was issued permitting a rancher of Gallatin County, Montana, to take about 200 head of his cattle through the park over the Gallatin road with the understanding that they were to be taken through in one day and kept on the road. This man's ranch is in the north end of the county, and he grazes his cattle in summer on the reserve in the south end of the county, which necessitates his driving them back and forth in spring and fall. There was snow on the ground at the time, and there was no damage of any sort to the park.

Impounded Stock: In three instances loose horses found grazing in the park were impounded and the owners notified. Fees were collected at the rate of \$1 per head for impounding charge, grazing on park grounds at \$1 per head a month, and actual cost of forage when circumstances necessitated using it. The total amount collected was \$59.20, of which \$3.20 was paid for hay, 15¢ for exchange, and the balance of \$55.85 is included in the monthly remittance shown on the attached report of revenues for November.

Birds

Summer birds left during November, and none but winter birds which include magpies, clarks' crows, crows, ducks, and sparrows are in evidence.

Fires

No fires occurred.

Accidents and Casualties

None were reported.

Sickness and Medical Service

No severe cases of sickness among park employees was reported.

The park physician, Dr. W. E. Crumbuck, was in the park, and reported having made 24 calls on government employees during the month.

48

Natural Phenomena

No changes in this respect were reported.

Special Visitors

Mr. Charles A. Payne, a noted lecturer connected with the University Extension service of University of Wisconsin, University of Minnesota, and several other universities, visited the park over night on Nov. 26-27 and was entertained and shown special attention.

Mr. Edmund Heller, Naturalist, who has been studying the big game animals in the park since August for the Roosevelt Wild Life Forest Experiment Station, left the park on November 27th for New York, where his address will be for the time Care of the Explorers' Club, 545 Amsterdam Avenue.

Motion Pictures

No motion picture operators worked in the park during the month, nor were any new permits granted.

School

The private school maintained at Park Headquarters for children of employees, was run by Mrs. Marriott in first-class shape and to the general satisfaction of the parents. The number of children patronizing this school on November 1st was and on November 30th, , the difference being caused from some of the park concessioners leaving for the winter. A copy of the teacher's Monthly Report for the months ended November 4 and December 2 respectively, are enclosed, and indicate by the remarkably steady attendance the amount of interest shown in the school.

Armistice Day

Flags in the park were carried at half-staff from sunrise to sunset on Armistice Day, November 11; in accordance with the President's proclamation dated September 30.

Miscellaneous

Entertainments. The activities of the Yellowstone Park Amusement Club which consists of practically every resident of Park Headquarters besides a few Gardiner residents, were revived and the first entertainment of the season was given in the amusement hall on the evening of November 26th. The first entertainment consisted of a one-act Comedy farce entitled "A Fool's Advice" by the Comedy Club, a representation

*Bee Hum
played second
time since
season closed
& again Jan 6*

of home talent, followed by moving pictures and later dancing. This season there are enough members so entertainments can be given weekly, and plans have been made to do so.

Religious Services. Both morning and evening service was held in the chapel on Sunday, November 6th, by Rev. J. P. Pritchard, of Biglart, Montana, and evening service was held on Nov. 13 by Rev. J. H. Groth, English Lutheran minister from Livingston, Montana.

Copies of Office Circulars Numbers 25 and 26, issued during November, are enclosed.

X. RECEIPTS AND REMITTANCES.

Monthly report of revenues due, collected, and transmitted during November, is enclosed. The total amount of money enclosed, namely \$161.46, is described as follows:

Draft No. 478, dated December 2, 1921, drawn by the Cashier, Tegen Bros. Bank of Gardiner, Montana, on The National Bank of the Republic, Chicago, Illinois, to your order, amount	\$ 55.85
Voucher Check No. 315, dated Nov. 21, 1921, drawn by the Yellowstone Park Hotel Company, on The National Bank of Montana, Helena, Montana, to your order, amount	7.61
Voucher Check No. 1441, dated Nov. 21, 1921, drawn by the Yellowstone Park Grange Company, on the National Bank of Montana, Helena, Montana, to your order, amount	88.97
Postal Money Order No. 48292, dated November 1, 1921 drawn by the Postmaster at Yellowstone Park, Wyoming, on the Postmaster at Washington, D. C., to your order, amount	2.43
Voucher check No. 586, dated November 14, 1921, drawn by Yellowstone Park Camps Company on The Northwestern National Bank, Livingston, Montana, to your order, amount	<u>6.60</u>
Total amount, as shown by enclosed reports	\$161.46

Acknowledgement of the receipt of the enclosed money is requested.

Cordially yours,

Chester A. Lindsley,
Acting Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D. C.

Enclosures.

CAL:JNS

November 30, 1921.

Brief Outline of Work accomplished during the month of
Nov. by the Painting Division.

Finished work on new addition to paint Shop.
Put in glass at Dupress' Telephone Office, Community
House, and Mr. Lindsley's Quarters.
Worked on storm sash for Brant & Office.
Varnished & Calomined Telephone Office.
Painted walls and woodwork, grained & varnished floors
of kitchen & two pantries at Frazer Quarters.
Calomined bed room & painted pantry at Higgins.
Started painting at Stennetts, expect to finish Dec. 4.

A. C. Neumann.

Nov 30, 1921.

Brief Outline of Work accomplished during the month of
Nov by the Plumbing Division.

Coxey installed 2 washbowls & 1 toilet
Ch. Station " 1 " & 1 "
Hills Drs. Began installation heating plant.
Fargo Installed 1 washbowl & 1 toilet.
Mr Albright house, removed sink in
Butter pantry & installed 1 toilet
& 1 washbowl.

Report of Power Plant for November 1921

Total Generated.		14960
Ed Concessioners.	2313	
Street Lighting.	<u>4181</u>	<u>6494</u>
Government Buildings & Lines		8466
Peak Load. 9/13-8 PM		38 KW

THE STORM OF NOVEMBER 21, 1921.

At Mammoth Hot Springs--Yellowstone Park, Wyo.

At 6 a.m. the snow changed to a mixture of snow and sleet, which continued until 1:50 p.m., when it changed to rain, sleet and snow. At 4:15 p.m. the temperature began to fall rapidly and sleet and snow again set in. From 1:50 p.m. to 4:15 p.m. there were sudden and rapid temperature fluctuations, ranging from 14° ^{between} ~~to~~ 33°. This sudden change in temperature at short intervals caused a corresponding change in the kind of precipitation, changing frequently from sleet and snow to sleet and rain, and vice versa. From 1 p.m. to 5:30 p.m. light fog formed and disappeared at intervals, as a result of the sudden mixing of air currents of widely different temperatures. Low stratus clouds or fog obscured the nearby mountains on all sides of the station during the day. Unusually light, variable winds prevailed. As sleet was falling with a surface temperature of -5° ~~at 6:30 a.m.~~ it is evident that a steep temperature inversion prevailed, which probably accounts for the freakish conditions that occurred during the day. At the time of the a.m. observation stratus clouds were moving rapidly from the west, while the surface wind was four miles from the north. A chinook condition set in shortly before 10 p.m. and the temperature rose from zero at 8:15 p.m. to 30° at 10 p.m.. Precipitation ended at 9:30 p.m. and the sky cleared suddenly with the coming of the chinook. At 6 p.m. there were 9.6 inches of snow on the ground, with about half an inch of crust on the top.

during the early morning

U. S. DEPARTMENT OF AGRICULTURE

WEATHER BUREAU

Yellowstone Park, Wyo.

WEATHER CONDITIONS--MAMMOTH HOT SPRINGS.

N O V E M B E R , 1921.

Temperature:

Monthly mean, 31.9° , is 2.6° above normal. Warm, pleasant weather prevailed during the first two weeks, while the third week was abnormally cold, -5° being registered on the 19th and 21st. The closing week was mild. The maximum of 60° on the 4th is the highest temperature recorded in November during the past 18 years.

Precipitation:

Total, 2.55 inches, is 1.11 inches above normal. With two exceptions this is the greatest monthly total of record for November. No precipitation fell during the first 12 days, but snow or rain was of almost daily occurrence during the remainder of the month.

Snowfall:

Total 23.7 inches; normal 10.5 inches. A greater amount of snow has fallen in November only in 1911 and in 1896.

Wind:

Total movement about normal, but the maximum velocity of 41 miles from the south on the 22d has been exceeded but once during the past 18 years.

Sunshine:

Percentage of possible 44; normal 47.

E. H. Fletcher,
Observer.

N O T I C E!

COMING! VAUDEVILLE & MOVING PICTURES

At

Fort Yellowstone Amusement Hall

Saturday, Nov. 26, 1921.

The COMEDY CLUB will present

A One-Act COMEDY FARCE Entitled

"A FOOL'S ADVICE"

Special Scenery and Electrical Effects

Also

G L O R I A S W A N S O N
~~V I O L E T H E M I N G~~

WITH AN ALL STAR CAST in the Five
Reel Picture "~~EVERYWOMAN~~" *Male & Female*
A Paramount Feature.

Good Music.

Overture at 7:50 P.M., Curtain
rises at 8:00 P.M., sharp.

This is the first of an All Winter
series of weekly Entertainments by the
Yellowstone Park Amusement Club. If
you are not already a member of this
Club, better inquire of the "Committee"
how you can join.

P R O G R A M

"THAT'S WHAT THEY ALL SAY"

A Farce Comedy.

Cast of Characters as they appear:

HENRY PLEADWELL-----Lawyer----- HANS LARSEN

Mrs.PLEADWELL---His Better Seven-eighths---MRS.ALLAN

POLLY PRIM-----The New Stenographer---MRS.BRANT

TOM WILSON-----Pleadwell's Old Friend---HARRY MARSHALL

Time - ANY.

Place - Pleadwell's Law Office,
New York City.

Yellowstone Park Amusement Hall,

December 3, 1921.

-----Programme-----

"That's what they all say"
A farce comedy

Cast of characters as they appear)

HENRY PLEADWELL-----Lawyer -----HANS LARSEN.

MRS. PLEADWELL-----His better ^hsevens₁-----MRS. ALLEN.

POLLY PRIM.-----The new stenographer ----- MRS. BRANT.

TOM WILSON-----Pleadwell's old friend-----HARRY MARSHALL.

TIME----ANY

PLACE---PLEADWELL'S LAW OFFICE.

NEW YORK CITY.

NOTICE!

MINA HELD her breath when she
JOHN DREW a free ticket to the
to be given at the Yellowstone
AMUSEMENT HALL Saturday Evening
ber 3, 1921.

THE COMEDY CLUB

present for your approval a One

COMEDY FARCE entitled

"THAT'S WHAT THEY ALL SAY"

this play was built for laughing
ses only and is guaranteed to
the worst case of Blues.

in connection with this sketch

will be run a feature photo-play

Entitled "MARY'S ANKLE"

Admission free to Members of the Club.

open at 7:30 O'clock
ure 7:50 O'clock
in rises 8:00 O'clock

Scott Mear ✓
Mrs. Hagerty ✓
Irma Rush ✓
Postoffice ✓
Transcript Mear

NNA HELD her breath when she heard JOHN DREW a free ticket to the show
be given at the YELLOWSTONE PARK AMUSEMENT HALL SAT. EVE DEC 3d 1921.

THE COMEDY CLUB

Will present for your approval a one act comedy farce entitled

"THAT'S WHAT THEY ALL SAY"

This play was built for laughing purposes only

and is guaranteed to cure the worst case of BLUES.

In connection with this sketch will be run a feature photo-play entitled

DOORS OPEN AT ----7,30 O'clock

Overture -----7,50 O'clock

Curtain rises-----8,0,clock.

---PROGRAMME---

"ALABAMA MINSTRELS"

-0--0-

- 1 -- Opening Song, "I'm Coming Back to Dixieland
Because I cannot Stay Away,"
(By Kitty Reynolds.)
- 2 -- Comic Verses, Sung by Reynolds, Bregdon and
Chorus.
- 3 -- Violin Solo, "Till we meet again,"
By Bert Stinnett.
- 4 -- Song, "Pullman Porter Blues",
By Frank Bregdon.
- 5 -- Negro Character Dance By Fred Reynolds.
- 6 -- Saxophone Solo, "The Bluebird,"
By R.C. Easton.
- 7 -- Grand Finale, "Back to Alabama in the Spring."
By Entire Company.

(INTERMISSION---Change of scenery.)

"IN THE TRENCHES"

Lieut. Rightdress, ----- Doc Bishop.
Private Slouch, ----- Frank Bregdon.
Corp. Bluch, ----- Fred Reynolds.

-Squad-

Mr. Roy Grey,
Mr. Clarence Scoyen,
Mr. Frank Bregdon,
Mr. Fred Reynolds,
Mr. Chas. Brant,
Mr. Bert Stinnett,
Mr. Harry Marshall,
Mr. R.C. Easton.

Time, Nov. 18th, 1918.
Place,
Arragone Woods--France.

This sketch was written and produced by Mr. Reynolds while
in France with the A.E.F., for the amusement of the soldiers.

et Vaccination

43 Male 39 female
2 broken leg

41

39

42 (Kld) 39 (Kld)

nd Vacation Nov. Dec. 3-1921

Bulls castrated

28 castrated = 68% of Males

Bull		Bull		Female		Female	
✓	22	Cast	1	✓	22	✓	
✓	23	Cast	2	✓	23	✓	
✓	24	Cast	3	✓	24	✓	
✓	25	Cast	4	✓	25	✓	
✓	26	Cast	5	✓	26	✓	
Cast	27	Cast	6	✓	27	✓	
Cast	28	✓	7	✓	28	✓	
✓	29	✓	8	✓	29	✓	
✓	30	Cast	9	✓	30	✓	
✓	31	Cast	10	✓	31	✓	
Cast	32	Cast	11	✓	32	✓	
✓	33	Cast	12	✓	33	✓	
✓	34	Cast	13	✓	34	✓	
Cast	35	Cast	14	✓	35	✓	
Cast	36	✓	15	✓	36	✓	
Cast	37	Cast	16	✓	37	✓	
Cast	38	Cast	17	✓	38	✓	
Cast	39	✓	18	✓	39	✓	1
Cast	40	Cast	19	✓			
Cast	41	Cast	20	✓			
Cast	42	Killed	21	✓			
		41					

1
Killed & vaccinated

Nov. 28 - 21

St. Vacations Buffalo Cabres 1921

Bull		Bull		Female		Female
✓	25	✓	1	✓	24	✓
✓	26	✓	2	✓	25	✓
✓	27	✓	3	✓	26	✓
✓	28	✓	4	✓	27	✓
✓	29	✓	5	✓	28	✓
✓	30	✓	6	✓	29	✓
✓	31	✓	7	✓	30	✓
✓	32	✓	8	✓	31	✓
✓	33	Broke leg	9	✓	32	✓
✓	34	✓	10	✓	33	✓
✓	35	✓	11	✓	34	✓
✓	36	✓	12	✓	35	✓
✓	37	✓	13	✓	36	✓
✓	38	✓	14	✓	37	✓
✓	39	✓	15	✓	38	✓
✓	40	✓	16	✓	39	✓
✓	41	✓	17	✓	40	✓
✓	42	✓	18	✓	41	39
✓	43	Broke leg	19	✓	42	
✓	44	✓	20	✓	43	
✓	45	43	21	✓	44	
✓	46	41	22	✓	45	
✓	47	✓	23	✓	46	
✓	48					

Chief Ranger Report

December 5th, 1921.

November 1921 Monthly Report.

Dear Mr. Lindsley,

My report on the activities of the ranger force for the month of November 1921 follows:

General Conditions.

Change of Positions.

Mr. James McBride, former Chief Ranger of the Yellowstone National Park was placed in charge of the fish and game, and the Slough Creek and Yancey hay meadows of the park, this order taking effect November 6th. This move releases Mr. McBride of many embarrassing responsibilities and places him in work which is very familiar to him and gives him a greater opportunity to devote his time and study to the care of the game of the park.

The change does not affect the Northern district at this time. Mr. McBride has charge of the patrols and is responsible for the protection of the Northern district until further orders.

Mr. Sam T. Woodring, park ranger in charge of the Canyon Ranger Station during the past tourist season, succeeds Mr. McBride as Chief Ranger. Mr. Woodring was a former Pack-master of the United States Army before accepting a position as a permanent ranger in July 1919. Previous to this time, while a packer he became well acquainted with the interior of the park under the supervision of the military.

Mr. Woodring assumed the duties of the Chief Ranger November 6th, and is responsible for the protection and the men in the Southern, Eastern, and Western districts of the park.

Circular No. 25, authorizing this change of management follows:

Circular No. 25

Nov. 5, 1921.

This circular becomes effective November 6th. It relates to a re-assignment of duties in connection with the protection of the park.

Chief Ranger James McBride will assume the duties of the Game and Fish Warden of Yellowstone National Park, which will include the development of plans for further stocking of the streams of the park with fish and cooperation with the Bureau of Fisheries in the collection of eggs and in the operation of fish hatcheries. He will also continue to travel thru the park for the purpose of observing conditions of the wild life, particularly the big game animals, and report to the Superintendent on his observations and advise him on matters relating to the care of the wild life.

Until further orders he will be in charge of, and responsible for the protection of the North line and the game of the Northern district. He will be relieved of the responsibility for protection of the other lines of the park and of the game and other natural conditions in the Southern and Western districts. He will continue to supervise operations of the Slough Creek hay ranches.

Park Ranger Sam T. Woodring will assume the duties of Chief Ranger of Yellowstone National Park, except such as will be naturally within the jurisdiction of the Game and Fish Warden. He will immediately become responsible for all property used by the ranger force, including ranger stations, equipment, supplies, etc. He will also become responsible for and will be charged with the protection of wild life and all other natural conditions and for the guarding of the line covered by the Western and Southern districts. He will control all hunting of predatory animals. He will make his headquarters at Mammoth Hot Springs and will be free to travel at will through the park. He will make plans for next season's operations, including the organization of the temporary force, the planing of additions to the trail system, the making of a program for cutting out trails, and take all other steps necessary and essential in the organization for operations in the way of protecting the park next year.

He will observe the work of all members of the ranger force and report his findings and conclusions to the Superintendent in connection with his plans for the organization of next year's protective force.

Horace M. Albright,
Superintendent

General Conditions.

Con't.

Hunting Season.

The open season for all big game animals and game fish closed with the month, the elk season of Montana closing November 15th, deer season, for bucks with visable horns only, closed at sundown November 30, and the season on the following fish closed at the same time: all fish with the exception of the Loch Leven Trout, Dolly Varden Trout, and Rocky Mountain White Fish. The game fish season does not open until May 29th,.

The following table shows the number of big game animals killed this year.

	Elk.	Bear.	Deer.	Sheep.
North,	8	4	4	0
West,	20	2	3	0
East,	15	4	3	2
South,	15	0	3	1
Total	58	6	13	3

Weather Conditions.

Very favorable weather conditions prevailed until November 15th. Heavy snow storms since that date have left snow in the following depths at our numerous gauging stations.

Mammoth,	16 inches.	Norris,	24 inches.
Gardiner,	1 inch.	Madison J.,	24 inches.
Crevice,	24 inches.	Riverside,	18 inches.
Hellroaring,	10 inches.	Gallatin,	24 inches.
Soda Butte,	12 inches.	Bechler,	36 inches.
Buffalo Farm,	8 inches.	Snake River	36 inches.
Tower Falls,	14 inches.	Lake,	16 inches.
Canyon,	24 inches.	Upper, Yel.	20 inches.
Sylvan Pass	12 inches.		

Game Condition.

Very few of the big game animals left the ridges for lower levels until about the 20th of the month, when the first big bands of elk were seen in the northern district. The elk in the eastern and southern district did not begin to leave the park until about this time.

An excellent increase is reported in the elk herds. Many calves are to be seen with the herds in the Hellroaring and Slough Creek districts. Deer are plentiful and Game Warden McBride reports 405 antelope, he having counted this number near Gardiner.

General Conditions.

Cont'.

Patrols.

No horses were used by the men in making their patrols in the interior of the park after November 16.

Ass't. Chief Ranger Douglas brought the Upper Yellowstone, Lake, and Sylvan Pass horses to Mammoth on November 4th. Contrary to plans made by Ass't. Chief Ranger Scoyen of the Western district, his horses, from the Gallatin and Riverside stations were brought to Mammoth November 16th. A heavy storm Nov. 15th, made this move necessary.

A heavy crust and a light snowfall made skiing a pleasure in most districts of the park November 17. Little difficult is encountered by the men in making their long patrols.

Big Game Orders.

Complying with the authorization of the Director of the Park Service, we began our preparations to capture three elk and four young buffalo for the New York Zoo. Buffalo Keeper Lacombe selected for excellent specimens of buffalo. These animals are all two year olds. With no small amount of difficulty, two of these animals were trucked to Mammoth November 25, and the remaining two, November 26th. *Shipt Dec 6*

Preparations were made November 28th to trap three young cows for the New York Zoo. The trap used to catch these elk was built by Game Warden McBride in the auto camp at Mammoth Hot Springs. We do not anticipate any trouble catching these animals. *2 Dec 6*

Hunting Permits.

Contrary to the sentiment expressed in my report for th month of October the following predatory animal hunting permits were issued; these permits limited the hunters to an area away from the antelope range, and were made clear in respect to disturbing the big game in the district.

Bert Stinnatt,
Charles Stinnett,
J.D. Fraser,
Dr. W.E. Crawbuck,
George Webb,
A.C.D. Henman,

Harry Marshall,
Bill Riely,
W.L. Bickett,
Roy X. Gray,
Lee Webb,

The above mentioned persons have been instructed to submit a written monthly report on their activities.

Personnel.

Additions.

The permanent ranger appointment of John Bauman, of Washington, was authorized and made by the Director effective Nov. 2, 1921. He is on duty at the Crevice Station.

Mr. Lee Webb, of Wyoming was employed November 29 on a daily basis of \$4.00 per day pending action on our request for his ranger appointment. Webb was employed to assist at the Buffalo Farm during the absence of Buffalo Keeper Lacombe; and will later be detailed to the Western District.

Changes.

Park Ranger Clifford Anderson, was transferred from the Riverside Ranger to the Gallatin Ranger Station November 7th, in relief of Sam T. Woodring, the Chief Ranger.

Temporary Park Ranger Sam Hurless, West Yellowstone Ranger Station, terminated his services with the National Park Service November 21st. Since the close of the tourist season he has been on patrol in the Western district from West Yellowstone to South Riverside. We expect to employ Mr. Hurless again next summer as checker at West Yellowstone.

Park Ranger Fred C. Finch was transferred from the Crevice Ranger Station to the Hellroaring Ranger Station November 18th, where he assisted in holding the elk back in the park.

*Back to Crane
16th*

Park Ranger George Winn, was transferred from the Soda Butte Ranger Station to the Hellroaring Ranger Station to assist in holding the elk back in the park. He reported at Hellroaring Nov. 18th.

Station Patrols.

Mammoth.

Chief Ranger Sam T. Woodring: Canyon Station police work around district. patrols over Black Tail, Hellroaring, Tower Falls, and Mt. Everts getting acquainted with the district. Two trips to the Buffalo Farm to assist with the vaccination and shipping of buffalo. Making elk trap--on leave.

Game and Fish Warden McBride: Two inspection trips over the northern district. Directing the construction of elk trap. Investigation of antelope herd. His findings are reported in another section of this report.

Personnel.
Cont'.

Station Patrols.
Mammoth.

Park Ranger Wendell M. Bishop: on duty at Chief Ranger's office. On leave. Two trips to Buffalo Farm assisting with vaccination of buffalo herd and shipment of buffalo. Building elk trap.

Riverside.

Ass't. Chief Ranger E. T. Scoyen: to Gallatin, South Riverside, Mammoth, Buffalo Farm, Gibbon Junction, Mammoth, on leave, to Riverside, to Grayling.

Park Ranger Roy T. Frazier: patrols over Riverside district. Checking property at old Yellowstone-Western barns, to Gibbon Junction with horses.

Gallatin.

Park Ranger Calvin O. Davis: to Grayling, Sportsman Lake, Snowslide. Reports trespassing in park.

Park Ranger Clifford Anderson: Riverside Ranger Station until November 7th. Patrols to Grayling, Sportsman Lake, Snowslide creek.

Bechler.

Park Ranger Raymond G. Little: Patrols to Cascade, Buffalo Lake, Mountain Ash Creek, to Ashton.

Park Ranger Al. T. Bicknell: to Cascade cabin, to Snake River, to Buffalo Lake, Mountain Ash Creek, to Ashton.

Snake River.

Park Ranger William Purdue: to Fox Creek, to Cascade Cabin, to Harebell, to Moran, to Thumb.

Park Ranger Lee Cottrell: to Fox Creek, Aster Creek, Cascade Cabin, Harebell, and Bechler River.

Lake.

Ass't. Chief Ranger Joe Douglas: to Park Point, to Mammoth, Lake, Upper Yellowstone, Snake River, Lake. Inspection of eastern district.

Park Ranger Luther Custer: Park Point, Cold Creek, Mammoth, Pelican, Park Point,

Park Ranger John A. Wells: Park Point, Cold Creek, Mammoth, Buffalo Farm, Pelican, Thumb.

Personnel
Cont'.

Station Patrols.
Upper Yellowstone.

Park Ranger Earl Bowman: to East Boundary, to Falcen Creek, to Bridger Lake, to Lake, to Cabin Creek, to Park Point.

Park Ranger Chester L. Butler: East boundary patrol, to Mariposa Lake, to Bridger Lake, to Lake, to Falcen Creek.

Sylvan Pass.

Park Ranger R.R. Wisdom: To Camp on Jones Creek, to Sylvan Lake, to Eagle Pass.

Tower Falls.

Park Ranger James M. Dupuis: herding elk at Hellroaring, two trips to Buffalo Farm to assist with cutting shipping and vaccination of Buffalo. To Mammoth twice. Out with horses to Yampys. To Buffalo Farm.

Soda Butte.

Park Ranger George Winn: to Pebble Creek, to Miller Creek, to Hellroaring Nov. 18th herding elk.

Park Ranger Forest L. Carter: to Pebble Creek, Miller Creek north park line and east park line.

Hellroaring.

Ass't. Chief Ranger Harry Trischman: Herding elk, to Mammoth, to Crevice, to Slough Creek, to Tower Falls, to Hellroaring, Cottonwood.

Slough Creek.

Park Ranger Ed. Burkett: In camp on North Park line, building cabin, to Mammoth.

Temp. Park Ranger William Dehnhoff: patrols up Slough Creek, on North Park Line, to Lower Slough Creek.

Crevice.

Park Ranger Fred C. Finch: Patrols along North Park Line, on leave. Transferred to Hellroaring November 18th. Herding elk.

Park Ranger John Bauman: Patrols along North Park line, two trips to Mammoth.

Personnel:
Con't.

Gardiner.

Park Ranger Thad C. Pound: Checking traffic, patrols up Turkey Pen herding elk, to Reese Creek, on leave.

Park Ranger Al McLaughlin: In camp on Reese Creek. Assisting Game Warden Bellar on elk violations.

Park Rangers on Leave.

The following park rangers were granted short leaves during the month:

W.M. Bishop,	1 1/2 days.
Fred C. Finch,	1 day.
B.C. Lacombe,	2 days.
Sam Hurless,	5 days.
Sam T. Woodring,	1 day.
Thad C. Pound,	3 days.

Game Condition:

Antelope.

Game Warden McBride has counted 405 antelope on the Gardiner Range. This is an increase of almost 100 over last year. They are in excellent condition and have little or no trouble finding all the feed they need. They are being herded back from the line fence whenever the occasion demands. So far we do not know of any being killed by predatory animals.

A noticeable feature of the increase is in the yearlings. These animals are almost matured and have a tendency to feed well back in the hills of the Northern district.

Bear.

The bears have caused no damage at any of the cabins, stations or hotels in the park this fall. The last bear seen this year was on November 23rd in the northern district.

Buffalo--Wild herd.

As mentioned in my last report, no effort has been made to locate these animals. Two were seen in the Upper Yellowstone district and five on Cache creek. Two calves were included in the later band.

Buffalo - Tame Herd.

Buffalo Tame Herd.

In completeing the statistics of the tame herd for the year, seventy four calves, or 11 more than were previously accounted for, are to be added to our record. In addition to this number, there are nine young calves, not accounted for in this number, nor have been weaned or vaccinated at the annual vaccination.

Two calves, a bull and a cow, were killed as an act of mercy, following a broken leg injury in each instance, sustained during the vaccination in the squeeze. An improvement has been made in the shoot which will, in the future, prevent similar accidents. These animals are not accounted for in the above mentioned figure.

The first vaccination of the calf herd was made by Dr. Neil Plank of the Animal Husbandry Div. of the D. of A. at Helena, Montana, on November 26. The second to be held one week later.

The cutting of the calves from the cows was performed November 22nd and was the most successful in the history of the ranch. The blinding of the corral fence at the ends and the construction of the heavy sliding gates, made the work much easier and prevented any injury to the animals. The only difficulty encountered was the shortage of fresh horses, which would make it easier on both man, beast and buffalo.

Deer.

The hunting season on deer extending from Nov. 1, to Nov. 31, and which permitted the killing of bucks with visible horns only, resulted in the death 13 head, the smallest number in many years.

Deer can be seen in many bands over the entire Northern district and are in excellent condition. Game Warden McBride reports having counted more than two hundred in the district.

Many bucks with great large heads, and strong body are wintering near Mammoth. One of the largest bucks, from every standpoint has been seen at Mammoth on several occasions. He is considered the finest specimen in the park.

Game Conditions.

Cont'.

Elk.

Again we are favored with ideal conditions for our elk herds. Forage is plentiful in all sections of the park, the snow is in not hindering them in their travels, and the majority are rolling fat, especially the cows and calves.

The increase in the calf crop is very noticeable, more than the average can be seen with each herd. Many large bulls, with excellent heads are winter between Mammoth and Towner Falls.

Game Warden McBride, in investigating the elk herds reports 5,800 in the Northern District. They remained high in the mountains until November 20th.

In preparation for any unexpected condition, the men at the Slough Creek Hay Ranches were instructed to begin feeding Nov. 28th. They are feeding about one ton per day, at each ranch.

Feed 3 loads of hay a day each ranch in Dec. about 3/4 T to a load

Following the procedure adopted last year, men are stationed with horses at Hellroaring and Slough Creek to herd the elk back from the park lines. A patrol is made from Gardiner and Mammoth over the Turkey Pen and Blacktail to hold them back.

Forty elk broke through the fence on the North line at Hoppe Creek but were herded back and the fence repaired by Park Ranger McLaughlin. None of this band were killed.

The elk in the Southern and Eastern herds did not begin to leave the park until the last of the month. No count was reported, but it is claimed they have increased considerable over last year.

Moose.

Moose are plentiful over the entire park. More than 500 being accounted for in the northern district. They are wintering in large numbers on the Black Tail and in the Slough Creek districts.

Moose in the Upper Yellowstone are numerous. Rangers Bowman and Butler had to take refuge in trees on several occasions when encountering bulls.

A careful check will be made and a special report made at a later date.

Game Conditions.
Cont'.

Mountain Sheep.

The majority of the mountain sheep remain well back in the hills of the Northern District. Thirty three have been counted in the Hellroaring and Mammoth districts. The few bands seen have a very satisfactory number of kids.

Park Ranger Wisdom reports two being killed in his district during the past hunting season.

Predatory Animals.

Predatory animals seem to be very numerous. The last snow storm will make the extermination of these animals much easier. Park Ranger Henry Anderson trapped in 6 coyote and one wolf hide during the month.

Many wolf tracks have been seen in the Mammoth and Black Tail districts. A special effort will be made to capture and kill entire band.

Hunting permits were issued to men employed by the National Park Service to hunt predatory animals during their spare time. Three coyotes were killed by various persons holding these permits.

Trapper Court B. Dewing trapped five coyotes before he was confined to the hospital. His condition is said to be serious.

Trapping.

Though the fur market is not as high as usual, many trappers are already running their lines and are preparing to trap near the park. So far they are reported as follows along the park lines:

North,	3,	South,	3,
West,	2,	East,	3.

Game Warden Appointments.

Game Wardens of Montana and Wyoming, complying with our request, have appointed all Park Rangers patrolling the borders of their respective states, Deputy Game and Fish Wardens without bond or pay. We expect to attain satisfactory results from this authority. One instance follows in another section, of this report.

Dupont
Mount S. Co 27
June Butte 17
Donr 35
Hellroaring 23
Mam 102

Arrests.

No arrests were made during the month by any member of the Ranger force, but assistance was rendered by a member in several instances.

Park Ranger Al McLaughlin, patrolling the Reese creek district, working with Game Warden Frank Bellar, acted as a witness in the case of Frank Lustrick and Frank Copeland, of Electric, Montana., who were charged with killing an elk out of season. Lustrick was fined \$250.00 and costs at Livingston, while Copeland was released.

McLaughlin and Bellar are working on another case where the party is alleged to have killed an elk out of season. Neither of the men are prepared to ~~discuss~~ discuss the matter further.

An effort is being made to arrest and convict a buck-hunter in the Fox Creek district. Word has just been sent to the Upper Yellowstone Rangers to investigate the case. A coyote was killed in the ~~the~~ Cottonwood district but no arrest was made.

Travel.

Though the travel for the month of November this year exceeded that of last year, it did not come up to expectations, considering weather conditions. Cars were running from Mammoth to West Yellowstone up to the 20th. The Superintendent's official car made two trips to the Buffalo Farm during the month in spite of 8 to 14 inches of snow. The last trip was made out Nov. 25th.

The travel by entrance is,		
North,	23 cars,	87 people.
West,	<u>6 cars,</u>	<u>17 people.</u>
Total,	29 "	104 " .

Impounded Stock.

Seven head of horses owned by Walter Shaw, and mentioned in my last report as being at the Buffalo Farm, were impounded and the \$1. fee assessed, making his total assessment \$23.20.

Ten head of horses owned by C.O. Williamson were impounded at Slough Creek. A fee of \$10 for impounding was charged, the horses being claimed the following day.

Respectfully,

Wendell M. Bishop,
Chief Rangers office.